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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/550,724

09/26/2005

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5995

42798 7590 06/09/2009  
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EXAMINER

PERREIRA, MELISSA JEAN

ART UNIT

PAPER NUMBER

1618

MAIL DATE

DELIVERY MODE

06/09/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/550,724	<b>Applicant(s)</b> KANAZASHI ET AL.	
	<b>Examiner</b> MELISSA PERREIRA	<b>Art Unit</b> 1618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-47 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

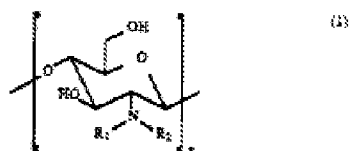
In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-45, drawn to a compound having affinity with a calcified tissue represented by the formula  $(AC)_a\text{-MC-(LI)}_b$  where AC is a group having affinity with a calcified tissue, MC is a residue of a compound having a plurality of functional groups (i.e. amino, amide, etc.) and LI is a ligand for binding a metal atom.  $a$  is an integer of 1 or more,  $b$  is 0 or an integer of 1 or more.

Group II, claim(s) 46 and 47, drawn to a method of selectively modifying an amino group at a terminal end by the reaction of a reduced amino oligosaccharide with a dicarbonate.

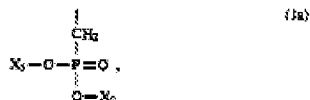
2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Kuhn et al. (5,777,091) discloses phosphonomethylated chitosans containing repeating units of formula (I) (below) where  $R_2$  is a radical of (1a) (below) (column 1).



wherein

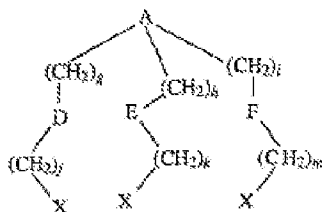
$R_1$  is hydrogen or a radical of formula



The phosphonomethylated chitosans of Kuhn et al., having a plurality of hydroxyl groups (corresponding to MC) and phosphonates (corresponding to AC), encompass the compound having affinity with a calcified tissue of the instant claims when LI is 0.

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Dunn et al. (US 5,565,184) discloses MRI, X-ray contrast agents and radiopharmaceuticals (below) (column 1, lines 10-14; column 5, lines 4-5) where A is N; D, E and F are  $\text{NR}_5$ ,  $\text{NR}_6$  and  $\text{NR}_7$  respectively where  $\text{R}_{5-7}$  may be H or  $\text{C}_6\text{-C}_{10}$  aryl; g, h, i, j, k and m may be one to about six and X is  $\text{-PO}_3\text{H}_2$  (column 4, lines 10-32).



Therefore the agents of Dunn et al., having a plurality of amine groups (corresponding to MC) and a plurality of phosphonates (corresponding to AC), encompass the compound having affinity with a calcified tissue of the instant claims when LI is 0.

3. This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The species are as follows:

A.) Please choose one of MC is:

- linear or branched oligosaccharide
- amino oligosaccharide
- cyclodextrin
- saccharide dendrimer
- etc.

B.) if applicant chooses oligosaccharide or amino oligosaccharide (MC) please choose from:

- $\alpha$ - or  $\beta$ -linked
- 1-3, 1-4 or 1-6 linked

C.) if applicant chooses saccharide dendrimer please choose from:

- polycarboxylic acid or an alkyl polycarboxylic acid
- polyamine or an alkylpolyamine

D.) Please choose one of metal atom or isotope element

E.) Please choose one of the compounds having affinity with a calcified tissue of formula (corresponding to claims 26-29):

- VI-1
- VI-2
- VII-1
- VII-2

Applicant is required, in reply to this action, to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

4. The claims are deemed to correspond to the species listed above in the following manner:

Claims 8-17 correspond to:

A.) MC is:

- linear or branched oligosaccharide
- amino oligosaccharide
- cyclodextrin
- saccharide dendrimer
- etc.

B.) if applicant chooses oligosaccharide or amino oligosaccharide (MC) please choose from:

- $\alpha$ - or  $\beta$ -linked
- 1-3, 1-4 or 1-6 linked

C.) if applicant chooses saccharide dendrimer please choose from:

- polycarboxylic acid or an alkyl polycarboxylic acid
- polyamine or an alkylpolyamine

Claims 31-35 correspond to:

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D.) metal atom or isotope element

Claims 26-29 correspond to:

E.) The compounds having affinity with a calcified tissue of formula:

- VI-1
- VI-2
- VII-1
- VII-2

The following claim(s) are generic: 1-25 and 30-47.

5. The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons:

6. The various MC groups have different structures, linkage sites and chemical reactivities and thus would require multiple searches.

7. The various metal atoms bind chelator groups (ligand for binding a metal atoms) differently while the isotopic elements (i.e. 11-C, 15-O, etc.) do not bind a chelator group at all. Therefore the search of metal atoms and isotopic elements would require multiple searches.

8. The compounds of claims 26-29 are structurally different as they contain a combination of different carbohydrate moieties and functional groups and thus would require multiple searches.

9. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

10. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one

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or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

11. The examiner has required restriction between product and process claims.

Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double

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patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MELISSA PERREIRA whose telephone number is (571)272-1354. The examiner can normally be reached on 9am-5pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Hartley can be reached on 571-272-0616. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael G. Hartley/  
Supervisory Patent Examiner, Art Unit 1618

/Melissa Perreira/  
Examiner, Art Unit 1618